In the claims:

Claims 1-46 (Canceled)

47. (Previously Presented) A radio-frequency (RF) apparatus comprising:

one or more integrated circuits comprising integrated RF circuitry, said integrated RF circuitry including integrated digital-to-analog conversion (DAC) circuitry; and

external frequency modification circuitry coupled to said integrated RF circuitry and comprising at least one variable capacitance device, said external frequency modification circuit being configured for coupling to a crystal to form a crystal oscillator circuit that is capable of generating an adjustable reference signal and of providing said adjustable reference signal to said integrated RF circuitry, said at least one variable capacitance device configured to adjust the frequency of said adjustable reference signal based at least in part on one or more analog frequency control signals received by said external frequency modification circuitry;

wherein said integrated RF circuitry is configured for coupling to baseband processor circuitry, and wherein said integrated DAC circuitry is configured to receive one or more digital frequency control signals from said baseband processor circuitry and to generate and provide at least a portion of said one or more analog frequency control signals to said external frequency modification circuit based on said one or more digital frequency control signals.

48. (Previously Presented) The apparatus of claim 47, wherein said integrated RF circuitry is integrated within a single integrated circuit.

49. (Previously Presented) The apparatus of claim 48, wherein said integrated RF circuitry further comprises:

integrated transceiver circuitry comprising receiver analog circuitry and transmitter circuitry;

integrated receiver digital circuitry coupled to said transceiver circuitry; and

integrated local oscillator circuitry coupled to said transceiver circuitry;

wherein said external frequency modification circuit is configured for coupling to a crystal to form a crystal oscillator circuit that is configured to provide said adjustable reference signal to said integrated local oscillator circuit.

50. (Previously Presented) The apparatus of claim 47, wherein said integrated RF circuitry is configured to receive said adjustable reference signal from said crystal oscillator circuit and is further configured to provide said adjustable reference signal or a signal based on said adjustable reference signal to said baseband processor circuitry.

51. (Previously Presented) The apparatus of claim 50, wherein said integrated RF circuitry further comprises integrated reference clock buffer circuitry configured for coupling to said baseband processor circuitry, said integrated reference clock buffer circuitry configured to receive said adjustable reference signal from said crystal oscillator circuit and to provide a buffered reference clock signal based on said adjustable reference signal to said baseband processor circuitry.

52. (Previously Presented) The apparatus of claim 47, wherein said at least one variable capacitance device comprises at least one continuously variable capacitor.

53. (Previously Presented) The apparatus of claim 47, wherein said external frequency modification circuitry comprises at least one continuously variable capacitor and at least one discretely variable capacitor, each of said at least one continuously variable capacitor and said at

least one discretely variable capacitor being configured to adjust the frequency of said adjustable reference signal in response to one or more frequency control signals, said at least one continuously variable capacitor being configured to adjust the frequency of said adjustable reference signal in response to said one or more analog frequency control signals received by said external frequency modification circuitry from said integrated DAC circuitry.

54. (Previously Presented) The apparatus of claim 47, wherein said variable capacitance device comprises:

variable capacitor circuitry configured to adjust the frequency of said adjustable reference signal in response to a plurality of control voltage signals; and

control circuitry, the control circuitry configured to generate the plurality of control voltage signals in response to at least one of said one or more analog frequency control signals received by said frequency modification circuitry from said DAC circuitry;

wherein the voltage level of each of the plurality of the control voltage signals differs by an offset voltage from the voltage level of the remaining signals in the plurality of control voltage signals.

55. (Previously Presented) The apparatus of claim 54, wherein said external frequency modification circuitry further comprises a digitally programmable capacitor array configured to adjust the frequency of said adjustable reference signal in response to a plurality of frequency control signals generated by a digitally programmable capacitor array register.

56. (Previously Presented) The apparatus of claim 47, wherein said one or more digital frequency control signals comprise signals generated by automatic frequency control (AFC) control circuitry within said baseband processor circuitry.

57. (Previously Presented) A radio-frequency (RF) apparatus comprising:

one or more integrated circuits comprising integrated RF circuitry, said integrated RF circuitry including integrated digital-to-analog conversion (DAC) circuitry; and

digitally controlled crystal oscillator (DCXO) circuitry coupled to said integrated RF circuitry, said DCXO circuitry comprising frequency modification circuitry and amplifier circuitry and being configured for coupling to a crystal to form a crystal oscillator circuit that is capable of generating an adjustable reference signal and of providing said adjustable reference signal to said integrated RF circuitry, said frequency modification circuitry comprising at least one variable capacitance device, and said DCXO circuitry being configured to adjust the frequency of said adjustable reference signal based at least in part on one or more analog frequency control signals received by said DCXO circuitry;

wherein said integrated RF circuitry is configured for coupling to baseband processor circuitry, and wherein said integrated DAC circuitry is configured to receive one or more digital frequency control signals from said baseband processor circuitry and to generate and provide at least a portion of said one or more analog frequency control signals to said DCXO circuitry based on said one or more digital frequency control signals; and

wherein at least one or both of said amplifier and said frequency modification circuitry of said DCXO circuitry comprises external circuitry that is external to said integrated RF circuitry.

58. (Previously Presented) The apparatus of claim 57, wherein said integrated RF circuitry is integrated within a single integrated circuit.

59. (Previously Presented) The apparatus of claim 57, wherein said amplifier of said DCXO circuitry comprises external amplifier circuitry that is external to said integrated RF circuitry.

60. (Previously Presented) The apparatus of claim 59, wherein said frequency modification circuitry of said DCXO circuitry is integrated within said integrated RF circuitry.

61. (Previously Presented) The apparatus of claim 57, wherein said frequency modification circuitry of said DCXO circuitry comprises external frequency modification circuitry that is external to said integrated RF circuitry.

62. (Previously Presented) The apparatus of claim 61, wherein said amplifier of said DCXO circuitry is integrated within said integrated RF circuitry.

63. (Currently Amended) The apparatus of claim 58, wherein said integrated RF circuitry further ~~compress~~ comprises:

integrated transceiver circuitry comprising receiver analog circuitry and transmitter circuitry;

integrated receiver digital circuitry coupled to said transceiver circuitry; and

integrated local oscillator circuitry coupled to said transceiver circuitry;

wherein said DCXO circuitry is configured for coupling to a crystal to form a crystal oscillator circuit that is configured to provide said adjustable reference signal to said integrated local oscillator circuit.

64. (Previously Presented) The apparatus of claim 57, wherein said integrated RF circuitry is configured to receive said adjustable reference signal from said crystal oscillator circuit and is

further configured to provide said adjustable reference signal or a signal based on said adjustable reference signal to said baseband processor circuitry.

65. (Previously Presented) The apparatus of claim 64, wherein said integrated RF circuitry further comprises integrated reference clock buffer circuitry configured for coupling to said baseband processor circuitry, said integrated reference clock buffer circuitry configured to receive said adjustable reference signal from said crystal oscillator circuit and to provide a buffered reference clock signal based on said adjustable reference signal to said baseband processor circuitry.

66. (Previously Presented) The apparatus of claim 57, wherein said at least one variable capacitance device comprises at least one continuously variable capacitor.

67. (Previously Presented) The apparatus of claim 57, wherein said frequency modification circuitry comprises at least one continuously variable capacitor and at least one discretely variable capacitor, each of said at least one continuously variable capacitor and said at least one discretely variable capacitor being configured to adjust the frequency of said adjustable reference signal in response to one or more frequency control signals, said at least one continuously variable capacitor being configured to adjust the frequency of said adjustable reference signal in response to said one or more analog frequency control signals received by said DCXO circuitry from said integrated DAC circuitry.

68. (Previously Presented) The apparatus of claim 57, wherein said variable capacitance device comprises:

variable capacitor circuitry configured to adjust the frequency of said adjustable reference signal in response to a plurality of control voltage signals; and

control circuitry, the control circuitry configured to generate the plurality of control voltage signals in response to at least one of said one or more analog frequency control signals received by said DCXO circuitry from said DAC circuitry;

wherein the voltage level of each of the plurality of the control voltage signals differs by an offset voltage from the voltage level of the remaining signals in the plurality of control voltage signals.

69. (Previously Presented) The apparatus of claim 68, wherein said frequency modification circuitry further comprises a digitally programmable capacitor array configured to adjust the frequency of said adjustable reference signal in response to a plurality of frequency control signals generated by a digitally programmable capacitor array register.

70. (Previously Presented) The apparatus of claim 57, wherein said one or more digital frequency control signals comprise signals generated by automatic frequency control (AFC) control circuitry within said baseband processor circuitry.